On the Comparative Population *of* European States.

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The different Statistical Congresses which, since the Great Exhibition of 1851, have been held in this and other countries, have had for their principal object to introduce uniformity and a general method into all those public documents which exhibit the social, moral, or commercial condition of nations. By these means the causes which accelerate or retard their social progress may be the more easily discovered, and many problems in political economy solved, on which the researches of individuals in a narrow sphere could never hope to throw much light.

But, hitherto, the discussions have been generally confined to the methods of inquiry, and the forms in which the information collected should be published, so as to allow of accurate and minute comparison.

It was not till the Congress in London, that M. Quetelet, to whose intellectual labours, more than perhaps those of any living author, the study of statistics owes the scientific position it has taken up, proposed that a commencement should be made by an actual compilation of facts relating to the population of different countries on a uniform plan. It was not intended to go into minute details ; but to show those marked features which would interest other nations as well as the one specially under observation. The population in provinces or departments, the influence of age on health and mortality, the distinctions of town and country life, the most important professions, and the different races of men,—these were some of the broad outlines common to all nations.

The idea was warmly approved, and the representatives of nearly all the States in Europe, and also of the United States of America, gave their cordial adhesion to the scheme. Their names

are too well known to the members of this Society to require mentioning here. Most of them will be found in my recent Report on the Statistical Congress at Florence last year.

M. Quetelet, assisted by M. Heuschling and other zealous and enlightened officials of the Belgian Government, undertook the great labour of collecting, condensing, and putting into a uniform shape, the mass of materials forwarded to them from all countries. The results have been published by the Belgian Government in the " Bulletin de la Commission Centrale de Statistique," tome x, 1866, with a preface most ably written by M. Quetelet, containing a summary of the leading facts and explanations of the method in which the censuses are taken in different countries. Some notion may be formed of the value of the materials, and of the immense labour of the compilation, when it is stated that even this brief summary of the official documents consulted, comprises four hundred quarto pages of tables, and yet relates only to the more important population statistics of different States.

M. Quetelet presented this most valuable work to the Statistical Congress of Florence last year, and was deservedly greeted with the applause of his colleagues.

In bringing it before the notice of this Society, I cannot 'but express a hope that similar pains will be given to a compilation of the statistics of agriculture, commerce, the means of transport and locomotion, and the financial condition of all countries. It would be a work worthy of the ability and skill of those eminent men, who have already earned the gratitude of all students of statistics by their devoted and useful labours.

I.—*Population in General.*

It must be noticed that the comparisons of population relate principally to the returns for 1861, the period of our last census; and though some modifications would have to be made at the present time, it forms a stand-point for comparison at our next census, when, it is to be hoped, another decennial collection will be made from European States, still more perfect than the one now under consideration. It must also be remarked, that as some common measure of surface is absolutely necessary to express density of population, the metric hectare (about 2·47, or say 2½ English acres) has been used, according to the frequent resolutions of the different congresses. It is easy to convert this mentally into English acres by dividing the figures by 4 and removing the decimal point one place to the right.

In Table A (Appendix) is given the total number of inhabitants, male and female, of the principal countries in Europe, the extent

of surface in hectares, the proportion of females to 1,000 males, and the number of hectares to every 1,000 inhabitants.

It thus appears in the populations of Europe amounting, about the year 1861, to 278,577,000, that in countries in which the sexes were distinguished, the number of males was 125,521,000, and females 127,365,000, or 1,015 females to 1,000 males. The total extent in hectares is given as 937,993,000, or 2,316,843,000 acres, and the average rather more than $3\frac{1}{3}$ hectares (about $8\frac{1}{3}$ acres) to each inhabitant.

The extremes of difference in the proportion of the sexes will be noticed in Saxe Coburg, which shows 1,077 females to 1,000 males; and in Greece, which, to the same number of males, only has 916 females. On this point, however, it is of great consequence to bear in mind the smallness of the actual numbers, and also the question whether the country has been sufficiently tranquil and well organised in its statistical departments, to ensure confidence in the accuracy of the facts recorded. This affords a stronger reason for more frequent comparisons in the same form, to allow of any real discrepancies being visible. The countries which contain a smaller proportion of females than males, according to these returns, are Italy, Belgium, the Roman States, and Greece.

As to density of population, the differences are very great indeed. Norway, for instance, for every 1,000 inhabitants, has an extent of 21,363 hectares; Belgium, only 650 hectares; the former being thirty-three times as great as the latter. In the United States, the difference is greater still, the number of hectares being 23,200 to every 1,000 inhabitants, and the population includes in the estimate nearly four millions of slaves.

To understand these differences we require a more minute report on the proportion of productive to unproductive lands, which is essential to the question. Thus, Austria, with a total extent, in 1857, of 66,518,151 hectares, had 100 parts out of 117 productive lands. In Belgium, on 7,564,604 hectares, 100 were estimated as productive out of 103. But these returns are not given for all countries; and even if they were, it is manifest that they would admit of very wide difference in the estimates from the difficulty of defining what is to be considered productive or unproductive. With sufficient capital, land might be brought into fertility in one country which in another would be considered permanently barren.

Great Britain.—M. Quetelet subdivides the population of the United Kingdom into that of England and Wales, Scotland and Ireland, and Islands in the British seas, with the relative proportion of females to males; but as the army is not subdivided in the same way, the total only is correct.

The census of Ireland, which, in 1841, gave 8,175,124 inhabitants, exhibited only 5,798,758 in 1861, very nearly what it was in 1809, from which it steadily increased up to 1845, when it began to decline.

In the Twenty-Eighth Report of the Registrar-General will be found the estimated male and female population of England and Wales, Scotland and Ireland, separately, for every year from the beginning of this century to 1867; but excluding the portion of the army and navy and merchant seamen abroad.

M. Quetelet draws attention to the remarkable increase in the populations of large towns of over 100,000 inhabitants, which took place in England between the years 1841 and 1851, the average increase having been 23 per cent. in that period. The same towns have continued to increase since, as appears by the returns to the middle of the year 1865. In the order of population at that date, they stood as follows :—

Population.	1865. (In 1000's,)
London	3,015,
Liverpool	476,
Glasgow	424,
Manchester	355,
Birmingham	328,
Dublin	318,
Leeds	224,
Edinburgh	174,
Bristol	162,
Salford	111,
Hull	104,
Total	5,691,

In the returns for 1851, Sheffield, Wolverhampton, and Bradford are included in the list; but it is scarcely worth while to give the comparison of numbers, as it is not easy to know if the limits of boundary are precisely the same at the two dates.

Some general details are given of the information furnished by the other States, but it would occupy too much space to analyse them all. It will suffice to give the following table of the total population in each State of the towns comprising more than 100,000 inhabitants, compared with the total population, as indicating, to a certain extent, the commercial activity which it may be reasonably assumed will be found to prevail in some proportion increasing with the density of population. Not to repeat the table of population (A), I have merely inserted the number of the total

town population and the proportion per cent. which it bears to the total population.

	Number of Towns.	Population of Towns with More than 100,000 Inhabitants (in 1,000's).	Town Population per Cent. of the Total Population.
England and Scotland	11	4,561,	19·53
Belgium	4	531,	11·72
Netherlands	2	364,	11·06
United States of America....	9	2,623,	8·35
France.................................	8	2,900,	7·76
Italy	8	1,497,	6·87
Denmark..............................	1	155,	5·95
Saxony	1	128,	5·76
Roman States......................	1	176,	5·63
Portugal	1	174,	4·72
Spain	4	714,	4·56
Prussia	3	814,	4·40
Austria	6	1,204,	3·22
Bavaria	1	148,	3·16
Sweden	1	112,	2·91
Russia	3	961,	1·62

The principal changes in population which have occurred in Europe, since the date given in Table A, have been in Germany, Austria, and Italy. The cession of the Venetian Provinces to the latter power, in 1866, added 2,514,500 hectares and nearly 2,459,000 inhabitants, bringing up the total population of Italy to 24,236,000, and giving 1,176 hectares to every 1,000 inhabitants.

The establishment of the North German Confederation, in 1867, united a number of the small States; and, according to the census of 1864, Prussia, with its 23,581,000 people, and the twenty-one other States, which constitute the confederation, comprise a total population of 29,319,000.*

Austria, after deducting for the Lombardo-Venetian kingdom, is represented, in 1857, by the census of 31st October in that year, as having a population of 32,530,000.

In the Registrar-General's Twenty-Eighth Report, published in 1867, the population of Great Britain (with an area of 77,287,000 statute acres), France (including the three newly annexed departments), Austria, Italy, and Spain, are given to the middle of the year 1865, and may be thus compared with Table A :—

* From an article in the " National Gazette," of 2nd December, 1867, published at Berlin, it appears that Germany, without Austria, now comprises a population of 38,697,000. Prussia has increased in three years, since 1864, from 23,591,000 to 24,014,000. Bavaria now includes 4,824,000 inhabitants, and Saxony 2,426,000.

	1865. Population in 1,000's.	Acres to a Person.
England and Wales	20,991,	1·78
Scotland	3,136,	6·26
Ireland	5,641,	3·60
United Kingdom	29,768,	2·60
France.........:......................................	37,981,	—
Austria (including Hungary, &c.)....	34,676,	—
Italy...	22,484,	—
Spain	16,379,	—

Note.—As these figures are official, they may be assumed to represent accurately those populations at recent dates.

II.—*Births.*

The registration of births is not so perfect as one could wish in several countries. In some, the civil registration is still incomplete, and where it is conducted by the religious denominations some omissions must be expected. In seventeen countries the returns of births in the census year were found to exhibit a little excess over the average of the few years preceding, which might be anticipated, from the fact that, in most countries, the population was increasing.

The following table exhibits the ratio of births to every 10,000 of the total population. I have converted M. Quetelet's proportions to every 10,000 of the population, that we may have the same common measure of population for all classes of facts which we here examine :—

Fecundity.—*Births to* 10,000 *Inhabitants.*

	Census Year.	Several Years.		Census Year.	Several Years.
France	256	255	Norway	356	330
Greece	296	288	Portugal	358	330
Belgium	297	303	Spain........................	391	366
Hanover	321	304	Austria	383	369
England	341	323	Wurtemburg	373	369
Bavaria	341	325	Prussia	377	398
Sweden	334	326	Saxony	408	412
Netherlands	351	327	Russia	488	412
Denmark	342	329			

The most remarkable rate of fecundity is shown in Russia, and especially in the single year under observation, when it was nearly twice as high as in France. The general average may fairly be taken at about 333 in 10,000, or 3⅓ per cent. England, which, according

to these returns was rather below that average, has been increasing since.

By the Registrar-General's last Returns, England, France, and Austria may be thus compared :—

	Births in 10,000 of the Population.		
	England.	France.	Austria.
1861.....................	346	269	395
'65.....................	356	265	391

Both the latter powers have fluctuated between somewhat higher numbers; but in England the increase has been steady since 1860.

By giving the number of births in the following table for the census year, they may, without repetition of figures, be compared with the populations in Table A (Appendix). The total of several years alluded to in the last table varied from three to ten years preceding, and need not be given, as the proportions are sufficiently near by either estimate.

Actual Number of Births in the Census Year 1860.

[For Population, see Table A.]

Russia......................................	2,896,950	Portugal	132,250
Austria	1,435,051	Netherlands	115,569
France.....................................	956,875	Denmark	89,186
England and Wales	684,048	Saxony......................................	90,805
Prussia	692,989	Hanover	60,567
Spain	611,609		
Bavaria	160,103	Wurtemburg	64,291
Belgium	134,187	Norway....................................	53,074
Sweden	133,162	Greece	32,405

The total number of births (not including the still-born, except, as is supposed, in Denmark and Spain), was 8,343,121 ; and, as the total population of these seventeen States was 219,445,000, the average for the census year was 381 in 10,000.

Sexes. Still-born Children.—The results of a single year, as to the proportion of males to females in living children, does not differ much from that of several years, the average of thirteen States being 1,057 males to 1,000 females for one year, and 1,055 on the average of several years; nor are the limits very wide, being from 1,068 in Spain, to 1,047 in Sweden.

But in the still-born, the remarkable fact is observed, that the

males exceed the females in the proportion of 1,335 to 1,000, the excess of males amongst children who die in birth being six times as great as the excess of the males in children born alive. And this result is general, since the limits vary only from 1,456 in France to 1,254 in the Netherlands, the latter being nearly $5\frac{1}{2}$ times as great as the lowest excess of males in children born alive.

Another remarkable fact will also be traced in the comparison of the births (Table B, Appendix), that in every country the proportion of male to female births is always much less in illegitimate than in legitimate births. There is but one exception to the rule, and that is in Russia, for the single census year. In all the other cases, whether for one year or the average of several years, the male births, as compared with female births, are fewer amongst the illegitimate children, on an average of several years, in the proportion of 1,038 to 1,057; and in the single census year as 1,038 to 1,061. This result is no doubt in great measure to be attributed to the greater medical skill which is generally obtained in legitimate births, and which is especially needed in the greater risks which medical authorities point out as attending the birth of a male child.

It is probably difficult to obtain with accuracy the number of still-born in illegitimate, as distinguished from legitimate, births. But such an inquiry would be important, as separating the natural causes of the greater losses of males in birth from those which may arise from mere want of proper medical care, or the frequently disheartening circumstances under which the births occur.

The proportion of illegitimate births may be compared with the legitimate births, including both sexes, as follows, on the average of the years observed :—

	Years.	Illegitimate to 1,000 Legitimate Births.
Bavaria	1851–60	279
Saxony	'59–61	182
Hanover	'54–58	114
Austria	'54–57	98
Sweden	'56–60	96
Norway	'51–60	96
Prussia	'59–61	91
Belgium	'51–56	86
France	'51–60	80
England and Wales	'45–60	71
Spain	'58–61	59
Netherlands	'50–59	44
Average	—	87

The average of the periods and of countries appears to be about 87 illegitimate to every 1,000 legitimate births. Belgium,

France, England, Spain, and the Netherlands, are below the average, the last country showing the favourable rate of 44 to 1,000, or little more than half the average, whilst Bavaria is at the other extreme, giving for the average of ten years 279, or more than three times the mean rate for all the other countries. Saxony ranks at about two-thirds of this rate.

Seasons.—The variation in the rate of births, as well as deaths, according to the seasons, has been marked in several series of observations. But in order to compare one country with another, it is not sufficient simply to record the births by monthly periods. It is requisite to accompany these facts with the character of the climate, and it would be difficult, at any rate for the present, to obtain comparisons for the same periods, and sufficiently precise to be of any value. We must be content with remarking that in Austria, Belgium, France, the Netherlands, and Sweden, for a series of years, and in Greece for one year, there appears to be a maximum of births in February or March, and a second maximum in September or October, whilst there is one minimum, though less clearly marked, between June and July, and another between November and December. It is probable, however, that the periods of the year no further affect the rate of birth than as they influence the number of marriages, which to a certain extent may depend upon the seasons or particular periods in the year. Thus, M. Wargentin long ago remarked, that many more marriages were contracted during the autumn and winter in Sweden than in the spring and summer, because the harvest produces abundance and the cattle are killed in autumn, so that the bulk of the people are then best able to give the entertainments usual on these occasions. In agricultural countries the harvest, and in manufacturing countries the period of the year at which work is most plentiful and wages highest, would more affect the rate of birth as following that of marriages than mere variations of climate.

III.—*Deaths.*

By classifying the countries in the order of their general rate of mortality deduced from a series of years, we shall form a better idea of the comparison. In Table C (Appendix), therefore, I have given the actual number of deaths in the census year on the population shown in Table A (Appendix), except that the population of England and Wales is taken as 20,066,224. The average rate for each 10,000 of the population is given for the census year as well as for the average of a series of years.

It thus appears that the total deaths in the census year were 5,048,000 on a total population of 217,725,000, or 232 in every 10,000 inhabitants. The fluctuations in a single year are consider-

able—from 175 in Sweden to more than double, 376, in Russia. But on an average of years the variations fall within narrower limits —from 171 in Norway to 281 in Bavaria. Russia does not give the means of comparison, except for one year. England and Sweden occupy the second best place in the scale, and Austria, Spain, Saxony, and Bavaria not differing much from each other at the other extreme. The estimate for Russia could not reasonably be taken for a single year, nor without reference to the rate of births which we have seen was the highest of all countries in the same year, 488, and the same as Saxony, 412, on an average of years. It seems probable that both these numbers may be wide of the truth, if the census of the population was defective, and it will be well to wait for further comparisons hereafter.

Increase of Population.—The mere estimates of births and deaths separately would lose half their value, if not compared together to ascertain whether the population of any country is stationary, or at what rate it is increasing or diminishing. In Table D (Appendix) the proportions have been computed on the average of the years under observation, and the ratio of births to deaths shown in the order beginning with the greatest excess of births.

Norway exhibits by far the largest excess of births over deaths, the excess being 93 upon every 100 deaths, and France the smallest, for the period referred to, being only 11 in excess on 100 deaths. England and Wales will be found in the fourth place, having an excess of 53 births over every 100 deaths, and this rate very nearly corresponds with the rate observed in the returns for 1865. The effect of this excess on the prosperity of the country can only properly be estimated in connection with the total population, the improveable area of the country, or the social conditions under which such an excess of population finds the means of subsistence, or the sanitary conditions, under which young children may perish at an early age or grow up to add to the working strength of the nation.

Mortality according to the Sexes.—The ratio of deaths amongst males as compared with females, is seen in the following table for the single census year, and for the series of years previously quoted. Since more males are born than females, it follows that eventually the same proportion of deaths must be in excess on the side of males. But it does not follow that the observations of a particular country, or a particular series of years, would correspond in these ratios, since the totals may be affected by emigration, by wars, which might carry off a larger proportion of males in a brief period, or by unhealthy occupations, which may take an undue proportion of males at particular ages after birth. The rate of death amongst females may be expected to be more uniform, and consequently the

ratios, though eventually corresponding with those of births, may never be so during the particular years of observation.

The following shows the proportion of male to female deaths in the census year, and in the series of years already noticed.

Male Deaths to 1,000 *Female.*

	Census Year.	Average of a Series.		Census Year.	Average of a Series.
Greece	1,102	—	Sweden	1,035	1,032
Saxony	1,077	1,076	Norway	1,028	1,028
Prussia	1,067	1,074	England	1,022	1,026
Spain	1,062	1,068	Netherlands	1,027	1,016
Austria	1,053	1,053	France	1,013	1,011
Denmark	1,075	1,051	Hanover	1,005	1,002
Bavaria	1,076	1,043	Belgium	1,024	989
Russia	1,041	—	Portugal	970	—

Seasons.—As a general rule, it may be noticed that the summer period shows the smallest number of deaths and the winter the highest. There is also a second maximum about the beginning of autumn, and soon afterwards a second minimum. In different countries, however, the facts collected by M. Quetelet fluctuate in different months, especially as to the minimum rates in Austria, Belgium, France, Netherlands, Sweden, Norway. By dividing the year into the four seasons the difference of mortality is sufficiently marked.

Deaths by Months.

	Austria.	Belgium.	France.	Netherlands.	Sweden.	Norway.
	1856-67.	1851-60.	1853-60.	1850-59.	1856-60.	1851-60.
Winter— Jan., Feb., March	601,001	377,429	1,985,204	217,340	110,181	69,932
Spring— April, May, June	495,068	344,912	1,724,810	192,218	102,402	67,340
Summer— July, August, Sept.	469,278	319,102	1,893,851	192,943	89,762	57,172
Autumn— Oct., Nov., Dec.	524,598	329,754	1,787,089	211,471	102,484	60,501
Total	2,089,945	1,371,197	7,390,954	813,972	404,829	254,945

Tables of Mortality.—The census of the population at any given period, classed under ages, together with the returns of deaths for a few years before and after the census year, allow of tolerably accu-

rate tables being constructed of the number of survivors at every age, from birth to extreme old age. It requires some caution, however, and knowledge of the subject to make allowance for the causes which affect the rate of increase of a population. Thus the defects in the registers of births or deaths, the ages of emigration or immigration, the proportion of the people in the army or navy in service out of the country, or of merchant seamen abroad, require careful consideration in comparing the number of deaths with the number living at certain ages. In some respects the statistics of assurance companies contain the most minute and accurate facts for reasoning; but as they, as well as the returns of friendly societies, refer either to particular classes or occupations, or to lives selected out of a general class, they cannot take, for national purposes, the place of tables carefully prepared from the mortality of the whole population.

In England we have three tables by Dr. Farr. No. 1, deduced from the census for 1841, and the mortality for the census year. No. 2, from the same census, but the mortality for the seven years, three before and three after the census year. No. 3, from a comparison of the two censuses, 1841 and 1851, and the mortality for seventeen years. Besides these, we have the healthy life table, deduced from sixty-three healthy districts in England and Wales, in which the annual mortality did not exceed 17 per 1,000 living on the population of 1851, and the deaths in the five years, 1849 to 1853. We are also indebted to Dr. Farr for the methods of application of the tables to numerous important questions in political arithmetic, and a complete collection of formulæ for the ordinary cases of life contingencies.

In M. Quetelet's collection will be found several mortality tables for other countries; one for Belgium, by himself; for Sweden, by Dr. Berg; for the Netherlands, by Dr. Baumhauer; for France, by M. Legoyt; and for Bavaria, by Dr. De Hermann. At the early periods of life, under five years, considerable discrepancies will be found in different countries, especially in France, Bavaria, and the Netherlands, arising probably from the deaths having been calculated on a stationary population; but at twenty years of age and upwards, the six tables differ very little from each other.

A wider difference is noticed if the observations are separated for the sexes. Thus, at birth the probable duration of life amongst males varies from 22 years in Bavaria to 48 years in Sweden, mean 35·5 years; at 20 years of age the difference is only from 39 years in France to 43 years in England, mean 41 years. Amongst females the variation is only, at birth, from 32 years in Bavaria to 55 years in Sweden, mean 41·3 years; and at 20 years of age, from 41 years in Bavaria to 46 years in Sweden, mean 43·3 years.

This subject is too wide and too important to enter into it further in the brief limits of this notice. I proceed to the last general feature of the summary of observations.

IV.—*Rate of Marriages.*

The accuracy of the marriage registers depends to a certain extent on the laws of the country, whether, in fact, marriage is treated as a civil or religious institution, or whether there are any other circumstances which control the registration. Thus, it will be noticed in Table E (Appendix) that, on an average of years, the proportion of marriages in every 10,000 of the population is only 62 in Bavaria; whilst in Saxony the average was 85, and in Russia, for the single year of the census, it appears as 105. But the explanation given is, that to obtain an authorisation to marry, in Bavaria, the intended husband must show that he has certain means of living. This condition is often dispensed with, and the civil marriage does not take place, thus accounting for the small proportion of marriages and the relatively large number of illegitimate births.

In the above table the census year and the average of years is the same as that given in Table A for the same countries. I have not, therefore, repeated the numbers of the population, which will be found in that table. For the sixteen States, the total population is 217,725,000, and the marriages in the census year being 1,883,959, shows about 87 in every 10,000 of the population, on the average of these countries. This is considerably above the average of the series of years in any one country, and shows that the census year was either exceptional or that the rate of marriage is generally increasing in Europe. It must be remarked, that Russia, with its large number and high proportion of marriages, considerably swells the average for the single year, and that further information as to the actual population of this country would be very desirable.

Omitting Bavaria at the one extreme, and Russia at the other, we should find the average of the census year reduced to 80 in 10,000. At this rate, which was the average rate of England and Wales for a series of years, Hanover, England, Spain, Saxony, Netherlands, Denmark, Austria, and Norway, were above the average in the year in the order recorded, and Prussia, France, Belgium, Sweden a little below.

Seasons.—The periods of the year are liable to have the regularity of numbers in marriages broken by other disturbing causes, which do not affect the deaths. For instance the season of Lent, restraining the number of marriages to a considerable extent in Roman Catholic countries, throws naturally an increased proportion just before or just after that period. In France, Austria, Belgium,

and Netherlands, there is a very marked minimum in the month of March, with a proportionate increase in February, and a still more decided minimum in the month of December, following a maximum in November in all the countries named. Sweden alone shows a maximum in April and December.

V.—*General Observations.*

With the view of affording some more recent dates for a comparison of the leading facts, the following, quoted from the Registrar-General's Twenty-Eighth Report, will be interesting :—

	Estimated Population in 1865.	In every 10,000 Inhabitants in 1865.		
		Marriages.	Births.	Deaths.
United Kingdom	29,768,000	84	354	231
France	37,981,000	79	265	242
Austria	34,676,000	80	391	310
Italy	22,484,000	92	385	299
Spain............................	16,379,000	—	375	329

It is impossible in so short a notice to draw attention to the many points of interest, which the large mass of materials referred to may elucidate by comparison and reduction to a common standard of observations. The proportion of the population existing at different ages of the sexes, and the rate of marriages at different ages amongst bachelors, widowers, spinsters, and widows, the town and country populations, professions or occupations, number of inhabitants to a house or family, &c., if not given in all the returns, will be found in some for comparison with others.

By extending the calculations to these classes of facts for every 10,000 of the population, the divergencies or defects of observation will be discovered, and we may reasonably expect that the distinguished official colleagues of M. Quetelet, who have undertaken so much labour in order to respond to his urgent and practical appeal, will gladly introduce such improvements as will give unity of method to future researches. The work they have already done is worthy of the enlightened Governments they represent, and their co-operation has tended, and will tend still more to advance the peaceful and social progress of all European countries.

APPENDIX.

TABLE A.—*Showing the Population, Male and Female, and the Territorial Extent of the Principal States of Europe, the Proportion of Females to Males, and the Extent of Land to each Inhabitant.*

States in Europe.	Years of Census.	Population (in 1,000's).			Extent in Hectares (in 1,000's).	Females to 1,000 Males.	Extent in Hectares to each 1,000 Inhabitants, 1 Hectare equal 2½ Acres nearly.
		Males.	Females.	Total.			
Russia in Europe	1858	29,351,	29,949,	59,300,	477,888,	1,020	8,059
Austria	'57	18,684,	18,767,	37,451,	66,518,	1,004	1,776
France	'61	18,645,	18,741,	37,386,	53,028,	1,001	1,418
Great Britain and Ireland	'61	14,380,	14,941,	29,321,	31,729,	1,039	1,082
Italy	'61	10,897,	10,880,	21,777,	25,932,	998	1,191
Prussia	'61	9,212,	9,279,	18,491,	28,955,	1,007	1,566
Spain	'60	7,752,	7,907,	15,659,	50,704,	1,020	3,244
Bavaria	'61	2,315,	2,375,	4,690,	7,565,	1,026	1,613
Belgium	'56	2,272,	2,258,	4,530,	2,946,	994	650
Sweden	'60	1,875,	1,985,	3,860,	39,924,	1,059	10,344
Portugal	'61	—	—	3,693,	8,600,	—	2,328
Netherlands	'59	1,616,	1,677,	3,293,	3,284,	1,038	997
Roman States	'53	1,600,	1,524,	3,124,	4,129,	953	1,338
Denmark	'60	1,297,	1,308,	2,605,	5,838,	1,009	2,241
Switzerland	'60	1,236,	1,274,	2,510,	4,142,	1,031	1,650
Saxony	'61	1,089,	1,136,	2,225,	1,501,	1,044	674
Hanover	'61	944,	944,	1,888,	3,846,	1,001	2,037
Wurtemburg	'61	830,	891,	1,721,	1,945,	1,075	1,130
Norway	'55	730,	760,	1,490,	31,832,	1,040	21,363
Greece	'61	567,	530,	1,097,	4,543,	933	4,142
Duchy of Saxe Meiningen	'61	84,	88,	172,	236,	1,047	1,369
Duchy of Saxe Altenbourg	'61	67,	70,	137,	132,	1,032	960
Duchy of Saxe Gotha	'61	55,	57,	112,	142,	1,047	1,262
Duchy of Saxe Cobourg	'61	23,	24,	47,	55,	1,077	1,168
		125,521,	127,365,	252,886, 3,693, 256,579,	855,414,	—	—

States in Europe.	Year of Census.	Population (in 1,000's).	Extent in Hectares (in 1,000's).	Extent in Hectares to each 1,000 Inhabitants.
Free Towns and smaller principalities of Germany	1860-61 or 1862	6,209,	7,697,	1,011
Turkey	1844	10,500,	55,679,	3,398
Servia	'44	1,100,	6,038,	5,489
Danubian Principalities	'44	4,000,	12,559,	3,140
Montenegro	'44	130,	494,	3,800
Waldeck (principality)	'61	59,	112,	1,907
Total		278,577,	937,993,	—

TABLE B.—*Births in the Census Year, distinguishing the Sexes in Legitimate, Illegitimate, and Still-born.*

	Census Year.	Legitimate.		Illegitimate.	
		Male.	Female.	Male.	Female.
Russia	1858	1,421,325	1,355,036	61,907	58,684
Austria	'57	664,194	623,763	75,514	71,580
France	'60	454,462	433,116	35,184	34,113
England and Wales	'60	327,640	312,715	22,159	21,534
Prussia	'61	340,848	322,016	30,919	29,235
Spain	'61	298,137	279,347	17,447	16,678
Bavaria	'60	63,287	59,391	18,990	18,435
Belgium	'60	69,107	65,089	5,261	5,211
Sweden	'56–60 mean	} 58,686	55,915	5,581	5,465
Portugal	—	—	—	—	—
Netherlands	1850–59 mean	} 52,911	50,140	2,310	2,236
Saxony	1861	39,608	37,302	7,064	6,831
Denmark	—	—	—	—	—
Hanover	1858	28,040	26,111	3,237	3,179
Norway	'60	25,126	23,515	2,260	2,175
Greece	'61	16,656	15,518	119	112

	Census Year.	Total.		Still-born.		
		Male.	Female.	Male.	Female.	Total.
Russia	1858	1,483,230	1,413,720	—	—	—
Austria	'57	739,708	695,343	13,546	10,045	23,591
France	'60	489,646	467,229	26,264	18,034	44,298
England and Wales	'60	302,834	290,588	—	—	—
Prussia	'61	354,788	338,201	16,979	13,050	30,029
Spain	'61	315,584	296,025	—	—	—
Bavaria	'60	82,277	77,826	3,228	2,339	5,567
Belgium	'60	74,368	70,300	3,995	2,985	6,980
Sweden	'56–60 mean	64,267	61,380	—	—	—
Portugal	—	60,951	57,519	—	—	—
Netherlands	1850–59 mean	59,307	56,262	3,628	2,894	6,522
Saxony	1861	46,672	44,133	2,316	1,762	4,078
Denmark	—	46,103	43,083	—	—	—
Hanover	1858	31,277	29,290	1,358	1,062	2,420
Norway	'60	27,386	25,688	1,341	997	2,338
Greece	'61	16,775	15,630	—	—	—

TABLE B *Contd.—Proportion of Male Births to* 1,000 *Female.*

	Legitimate.		Illegitimate.		Total.		Still-born.		Average Years.
	One Year.	Average.	One Year.	Average.	One Year.	Average.	One Year.	Average.	
Russia	1,049	—	1,055	—	1,049	—	—	—	—
Austria	1,065	1,062	1,055	1,053	1,064	1,061	1,348	—	1854–57
France	1,049	1,054	1,031	1,033	1,048	1,053	1,456	—	'51–60
England and Wales	1,048	—	1,029	—	1,042	1,049	—	—	'41–50
Prussia	1,059	1,058	1,057	1,051	1,049	1,048	1,301	—	'59–61
Spain	1,067	1,069	1,058	1,041	1,066	1,068	—	—	'58–61
Bavaria	1,066	1,057	1,030	1,038	1,057	1,053	1,380	—	'51–60
Belgium	1,062	1,055	1,010	1,025	1,058	1,052	1,339	—	'51–60
Sweden	1,050	1,051	1,021	1,021	1,047	1,047	—	—	'56–60
Portugal	—	—	—	—	1,060	—	—	—	—
Netherlands	1,055	1,055	1,033	1,033	1,054	1,054	1,254	—	1850–59
Saxony	1,062	1,055	1,034	1,038	1,058	1,058	1,315	—	'59–61
Denmark	—	—	—	—	1,070	1,062	—	—	'55–59
Hanover	1,074	1,065	1,019	1,036	1,068	1,062	1,279	—	'54–58
Norway	1,069	1,052	1,040	1,049	1,066	1,052	1,345	—	'51–60
Greece	1,074	—	1,062	—	1,073	—	—	—	—
Mean	1,061	1,057	1,038	1,038	1,057	1,055	1,335	—	

TABLE C.—*Number of Deaths in the Census Year, and Proportion to every* 10,000 *of the Population in the Census Year, and on an Average of Years.*

States.	Census Year.	Number of Deaths in the Census Year.			Deaths to 10,000 Inhabitants.		Years of Average.
		Male.	Female.	Total.	Census Years.	Average of Years.	
Norway	1860	13,889	13,509	27,398	184	171	1851–60
England	'60	*186,459	*182,527	422,721	211	210	'51–60
Sweden	'60	34,329	33,173	67,502	175	210	'56–60
Denmark	'59	29,303	27,270	56,573	217	214	'55–59
Belgium	'60	46,980	45,891	92,871	205	226	'51–60
Portugal	'60	37,815	39,001	76,816	208	—	—
Hanover	'58	22,148	22,041	44,189	234	227	1854–58
France	'60	393,381	388,254	781,635	209	232	'57–60
Greece	'61	12,041	10,928	22,969	210	—	—
Netherlands	'59	52,229	50,838	103,067	313	247	1850–59
Prussia	'61	256,941	240,700	497,641	269	262	'59–60
Austria	'57	521,758	495,269	1,017,027	272	275	'49–57
Spain	'61	215,198	202,566	417,764	267	276	'58–61
Saxony	'61	34,931	32,442	67,373	303	278	'59–61
Bavaria	'60	63,718	59,198	122,916	262	281	'51–60
Russia	'58	1,137,272	1,092,464	1,229,736	376	—	—
				5,648,198			

* Total in 1850, 368,986.

TABLE D.—*Showing on an Average of Years the Ratio of Births to Deaths.*

	Years of Observation.	Average Annual Number of		Ratio = Births./Deaths.
		Births.	Deaths.	
Norway	1851–60	49,230	25,506	1·93
Portugal	'61	132,250	76,816	1·72
Sweden	'56–60	125,647	80,966	1·55
England and Wales	'51–60	647,165	421,071	1·53
Denmark	'55–59	85,673	55,853	1·53
Saxony	'59–61	91,677	61,774	1·48
Prussia	'59–61	702,676	484,068	1·45
Greece	'60–61	31,630	22,969	1·38
Austria	'54–57	1,379,781	1,030,659	1·34
Belgium	'51–61	137,120	102,327	1·34
Hanover	'54–58	57,245	42,762	1·34
Spain......................	'58–61	571,886	432,067	1·32
Netherlands	'50–59	107,598	81,397	1·32
Russia	'58	2,896,950	2,229,736	1·30
Bavaria	'51–60	152,236	131,947	1·16
France	'51–60	953,593	866,722	1·11

TABLE E.—*Number of Marriages in the Census Year, and Proportion to every* 10,000 *of the Population in the Census Year, and on an Average of Years.*

	Number of Marriages.	In 10,000 Inhabitants.	
		Census Year.	Average of Years.
Bavaria	32,221	68	62
Portugal	23,584	64	—
Greece...................................	7,175	65	—
Belgium	35,112	78	74
Sweden	29,839	78	76
Norway	12,009	81	77
Spain	130,731	83	77
France...................................	288,936	78	77
Netherlands	27,007	82	78
Austria	301,524	81	79
England and Wales	170,156	85	80
Denmark...............................	21,390	82	81
Prussia	146,992	79	81
Hanover	16,204	88	82
Saxony	18,517	53	85
Russia	622,562	105	—
	1,883,959	—	—